

Please type a plus sign (+) inside this box → (+)

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				Application Number	New Divisional Application based on USSN: 10/189,212
				Filing Date	July 7, 2003
				First Named Inventor	Richard W. Gross et al.
				Group Art Unit	2662 (expected) 2616
				Examiner Name	Ahmed Elallam (expected)
Sheet	1	of	5	Attorney Docket Number	081513-329

U.S. PATENT DOCUMENTS						
Examiner Initials <sup>2</sup>	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>3</sup> (if known)			
AE ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ AE		3,573,380		Darlington	04/06/1971	
		4,131,766		Narasimha	12/26/1978	
		4,568,156		Dane	02/04/1986	
		4,679,227		Hughes-Hartogs	07/07/1987	
		4,731,816		Hughes-Hartogs	03/15/1988	
		4,802,190		Schouhamer Immink	01/31/1989	
		4,912,763		Galand et al.	03/27/1990	
		5,048,054		Eyuboglu et al.	09/10/1991	
		5,128,964		Mallory	07/07/1992	
		5,206,886		Bingham	04/27/1993	

FOREIGN PATENT DOCUMENTS							
Examiner Initials <sup>2</sup>	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
AE ↓ ↓ ↓ ↓ AE			EP 0 473 465	B1 ✓		03/04/1992	
			EP 0 652 677	A2 ✓		05/10/1995	
			EP 0 703 685	A2 ✓		03/27/1996	
			EP 0 753 947	A1 ✓		01/15/1997	
			EP 0 762 701	A2 ✓		03/12/1997	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS				
Examiner Initials <sup>2</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		
AE		John A. C. Bingham (May 1990), "Multicarrier Modulation For Data Transmission: An Idea Whose Time Has Come," <u>IEEE Communications Magazine</u> , pp. 5-14.		
AE		Shoham et al. (September 1988), "Efficient Bit Allocation for an Arbitrary Set of Quantizers," <u>IEEE Transactions on Acoustics, Speech and Signal Processing</u> , 36(9): 1445- 1453.		

Examiner Signature	/Ahmed Elallam/	Date Considered	12/09/2006
-----------------------	-----------------	--------------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → [+]

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				Application Number	New Divisional Application based on USSN: 10/189,212
				Filing Date	July 7, 2003
				First Named Inventor	Richard W. Gross et al.
				Group Art Unit	2662 (expected)
				Examiner Name	Ahmed Elallam (expected)
Sheet	2	of	5	Attorney Docket Number	081513-329

U.S. PATENT DOCUMENTS						
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
AE ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ AE		5,285,474		Chow et al.	02/08/1994	
		5,327,574		Monma et al.	07/05/1994	
		5,400,322		Hunt et al.	03/21/1995	
		5,428,790		Harper et al.	06/27/1995	
		5,452,288		Rahuel et al.	09/19/1995	
		5,479,447		Chow et al.	12/26/1995	
		5,497,398		Tzannes et al.	03/05/1996	
		5,521,906		Grube et al.	05/28/1996	
		5,533,008		Grube et al.	07/02/1996	
		5,555,244		Gupta et al.	09/10/1996	

FOREIGN PATENT DOCUMENTS								
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>4</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
AE ↓ ↓ ↓ ↓ AE			EP 0 812 087	✓ A2		12/10/1997		
			EP 0 820 168	✓ A2		01/21/1998		
			EP 0 840 474	✓ A2		05/06/1998		
			EP 0 905 948	✓ A2		03/31/1999		
			WO 86/07223	✓		12/04/1986		

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS				
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T <sup>2</sup>
AE		John M. Cioffi "A Multicarrier Primer,;" <u>Amati Communications Corporation and Stanford University</u> , pp.1-18.	✓	
AE		John A. C. Bingham (May 1996), "RFI Suppression in Multicarrier Transmission Systems," Amati Communications, <u>IEEE Communications Magazine</u> , pp. 1026-1030.	✓	

Examiner Signature	/Ahmed Elallam/	Date Considered	12/09/2006
-----------------------	-----------------	--------------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → [+]

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>				<b>Complete if Known</b>			
				Application Number		New Divisional Application based on USSN: 10/189,212	
				Filing Date		July 7, 2003	
				First Named Inventor		Richard W. Gross et al.	
				Group Art Unit		2662 (expected)	
				Examiner Name		Ahmed Elallam (expected)	
Sheet	3	of	5	Attorney Docket Number		081513-329	

U.S. PATENT DOCUMENTS						
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
AE ↓		5,596,604		Cioffi et al.	01/21/1997	
		5,598,435		Williams	01/28/1997	
		5,625,651		Cioffi	04/29/1997	
		5,636,246		Tzannes et al.	06/03/1997	
		5,644,573		Bingham et al.	07/01/1997	
		5,673,290		Cioffi	09/30/1997	
		5,731,706		Koeman et al.	03/24/1998	
		5,805,669		Bingel et al.	09/08/1998	
		5,812,599		Van Kerckhove	09/22/1998	
	AE	5,822,372		Emami	10/13/1998	

FOREIGN PATENT DOCUMENTS						
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Foreign Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Office <sup>3</sup>	Number <sup>4</sup> Kind Code <sup>2</sup> (if known)			
AE ↓			WO 97/15131 ✓		04/24/1997	
			WO 98/10556 ✓		03/12/1998	
			WO 98/27665 ✓		06/25/1998	
			WO 98/57472 ✓		12/17/1998	
	AE		WO 98/59476 ✓		12/30/1998	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
AE		Atungsiri et al. (June 1997), "Multirate Coding for Mobile Communications Link Adaptation," <u>IEEE Proc. Commun.</u> , 144(3):211-216.	✓
AE		Related Application USSN. 09/597,926 with a copy of Preliminary Amendment as filed.	

Examiner Signature	/Ahmed Elallam/	Date Considered	12/09/2006
--------------------	-----------------	-----------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → [+]

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>				<b>Complete if Known</b>			
				Application Number		New Divisional Application based on USSN: 10/189,212	
				Filing Date		July 7, 2003	
				First Named Inventor		Richard W. Gross et al.	
				Group Art Unit		2662 (expected)	
				Examiner Name		Ahmed Elallam (expected)	
Sheet	4	of	5	Attorney Docket Number		081513-329	

U.S. PATENT DOCUMENTS						
Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
AE ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ AE		5,822,374		Levin	10/13/1998	
		5,832,387		Bae et al.	11/03/1998	
		5,852,633		Levin et al.	12/1998	
		5,903,608		Chun	05/1999	
		5,933,454		Cioffi	08/03/1999	
		5,960,036		Johnson et al.	09/1999	
		6,005,893		Hyll	12/1999	
		6,014,425		Bingel et al.	01/11/2000	
		6,028,486		Andre	02/22/2000	
		6,052,411		Mueller et al.	04/18/2000	

FOREIGN PATENT DOCUMENTS							
Examiner Initials <sup>*</sup>	Cite No. <sup>1</sup>	Foreign Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup> (if known)				
AE ↓ ↓ ↓ ↓ AE			WO 99/16224 ✓		09/09/1998		
			WO 99/18701 ✓		04/15/1999		
			JP 60-112357 ✓		06/18/1985		
			JP 62-502932 ✓		11/19/1987		
			JP 11-168515 ✓		06/22/1999		

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>	

Examiner Signature	/Ahmed Elallam/	Date Considered	12/09/2006
--------------------	-----------------	-----------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → [+]

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>				<b>Complete if Known</b>			
				Application Number		New Divisional Application based on USSN: 10/189,212	
				Filing Date		July 7, 2003	
				First Named Inventor		Richard W. Gross et al.	
				Group Art Unit		2662 (expected)	
Examiner Name		Ahmed Elallam (expected)					
Sheet	5	of	5	Attorney Docket Number		081513-329	

U.S. PATENT DOCUMENTS						
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
AE ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ AE		6,055,297		Terry	04/25/2000	
		6,061,392		Bremer et al.	05/09/2000	
		6,065,060		Liu et al.	04/2000	
		6,072,779		Tzannes et al.	06/06/2000	
		6,073,179		Liu et al.	06/06/2000	
		6,092,122		Liu et al.	07/18/2000	
		6,101,216		Henderson et al.	08/08/2000	
		6,128,335		Liu et al.	10/02/2000	
		6,144,696		Shively et al.	11/07/2000	
		6,161,203		Zuranski et al.	12/12/2000	
		6,219,378		Wu	04/17/2001	
		6,229,855 X		Takatori et al.	05/08/2001	

FOREIGN PATENT DOCUMENTS						
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Foreign Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Office <sup>3</sup>	Number <sup>4</sup> Kind Code <sup>2</sup> (if known)			
AE ↓ ↓ ↓ AE			JP 7-336274 ✓	Nakatsuka Monta	12-22-1995	English Abstract only
			JP 4-22235 ✓	Hinokimoto Shinichi	01-27-1992	English Abstract only
			JP 9-51328 ✓	Chun You-Sik	02-18-1997	English Abstract only

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>

Examiner Signature	/Ahmed Elallam/	Date Considered	12/09/2006
--------------------	-----------------	-----------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.